Name Class Date

*Chapter 7*

**Simplify each radical expression. Use absolute value symbols as needed.**

**1.**  **2.** 

**3.**  **4.** 

**Simplify each expression. Rationalize all denominators. Assume that all variables are positive.**

**5.**  **6.**  **7.** 

**8.**  9**.** 

**Simplify each expression. Assume that all variables are positive.**

**10.**  **11.** 

**12.**  **13.** 

**Solve each equation. Check for extraneous solutions.**

**14.**  **15.** 

**16.** **17.** 

**Let ƒ(*x*) =** **4*x* and *g*(*x*) =** ***x*2 ** **5*x*. Perform each function operation. Then find the domain of each.**

**18.** ƒ(*x*) ⋅ *g*(*x*) **19.** 

**For each pair of functions, find ƒ(*g*(*x*)) and *g*(ƒ(*x*)).**

**20.** ƒ(*x*) = *x*2 − 2*x*, *g*(*x*) = 5*x* **21.** ƒ(*x*) = 2*x* − 1, *g*(*x*) = *x*2 + 3

**Match each function with its graph.**

|  |  |  |  |
| --- | --- | --- | --- |
| **22.** | *y* = | **A.** |  |
| **23.** | *y* = | **B.** |  |
| **24.** | *y* = | **C.** |  |
| **25.** | *y* = | **D.** |  |

**Let ƒ(*x*) =** **2*x*2** – **1 and *g*(*x*) =** **3*x* + 2. Find each value.**

**26.** ƒ(*g*(−2)) **27.** *g*(ƒ(0))

**28.** ƒ(*g*(1)) **29.** 

**Find the inverse of each function. Is the inverse a function?**

**30.** ƒ(*x*) = (*x* − 1)2 + 3 **31.** ƒ(*x*) = 

**32.** ƒ(*x*) = 4*x* − 5 **33.** ƒ(*x*) = *x*2 + 7

*Chapter 8*

**Graph each function.**

**1.** *y* = (10)*x* **2.** *y* = 7

**3. Investment** You put $3000 into an account earning interest compounded continuously. After 6 yr, you have $4049.58.What percent interest did you earn?

**Describe how the graph of each function is related to the graph of its parent function.**

**4.** *y* = 4*x*+1

**Evaluate each logarithm.**

**5.** log381 **6.** log151 **7.** log4

**Graph each logarithmic function.**

**8.** *y* = 5 – log2*x* **9.** *y* = log (*x* – 3)

**Write each equation in logarithmic form.**

**10.** 64 = 1296 **11.** 5–4 = 0.0016

**Write each logarithmic expression as a single logarithm.**

**12.** log 35 – log 7 **13.** log *ab* + log *b*

**Expand each logarithm.**

**14.** log2*ab* **15. **

**Write each expression as a single natural logarithm.**

**16.** 2 ln 6 – ln 4 **17.** 4 ln *u* + 7 ln *v*

**Use the properties of logarithms to evaluate each expression.**

**18.** log5 **19.** log 4 + 2 log 5 **20.** log 7000 – log 70

**Solve each equation. Round to the nearest hundredth.**

**21.** log 4*x* = 2 **22.** log *x* = 

**23.** 103*x* = 55 **24.** log (5*x* + 4) = 4

**Use the Change of Base Formula to rewrite each expression using common logarithms.**

**25.** log65 **26.** log812

**Use the properties of logarithms to simplify each equation and solve it.**

**27.** ln (2*x* – 1) = 0 **28.** ln 4 + 2 ln *x* = 0

**29.** A parent raises a child’s allowance by 12% each year. If the allowance is $3.50 now, when will it reach $18?